

REMARKS

A. Request for Reconsideration

Applicants have carefully considered the matters raised by the Examiner in the outstanding Office Action but remain of the position that patentable subject matter is present. Applicants respectfully request reconsideration of the Examiner's position based on the Declaration of Mr. Nakajima, the amendments to the claims and the following remarks.

B. The Invention

The present invention is directed to a photothermographic imaging material having a polymer layer provided as a back coating layer on a side of the support opposite the photosensitive layer.

In one of the novel aspects of the invention, the polymer layer has a copolymer of Formula (1) of the invention produced by a pearl polymerization method, wherein the copolymer of Formula (1) has 2-9 fluorine atoms in the "O-(R²)-(CF₂)_nX" portion. The photothermographic material of the claimed invention has superior coating characteristics and transportability.

C. Claim Status and Amendments

Claims 1-4, 6-8 and 10 are presented for further prosecution.

Claim 1 has been amended to recite that the polymer layer is provided as a back coating layer on a side of the support opposite the photosensitive layer. Support for this amendment can be found on page 49, lines 11-12 of the application.

Claim 1 has also been amended to delete the language specifying that the pearl polymerization method forms beads of the copolymer. Applicants do note, however, that copolymer beads are inherently formed by the pearl polymerization process.

D. Rejections under 35 USC § 112

Claims 1-4, 6-8 and 10 had been rejected for failing to comply with the written description requirement. The Examiner had stated that the specification discloses "polymer" beads, not "copolymer" beads, and that the term "beads" is not defined in the specification.

Applicants have deleted the language in claim 1 referring to copolymer beads. It is therefore believed that the § 112 rejections are moot.

E. Rejections under 35 USC 102(b) or 103(a)

Claims 1-4, 6-8 and 10 had been rejected as being anticipated by or unpatentable over Sampei (US 6,190,854). Claim 10 had been rejected as being unpatentable over Sampei in view of Arimoto (US 6,475,697).

Sampei teaches a photothermographic material having a copolymer of Formula (A-a) (col. 6, lines 3-10), Formula (A-b) (col. 6, lines 11-20), Formula (B) (col. 13, lines 28-37) or Formula (C) (col. 15, lines 1-10). Exemplified units of Formulas (A-a), (A-b), (C) and (D) are shown by examples A-1 to A-65, B-1 to B-14, C-1 to C-24, D-1 to D-7 and E-1 to E-9 in cols. 6-19. The Examiner had stated that the copolymer of Sampei overlaps the claimed copolymer.

1. Sampei does not teach or suggest that the copolymer is produced by pearl polymerization

Claim 1 recites that the copolymer is produced by pearl polymerization. The claimed pearl polymerization process forms beads of the copolymer which are larger than the particles obtained from other polymerization processes. The beads formed by the pearl polymerization process are also more uniform in size and shape and easier to separate from water.

Sampei does not teach or suggest using the pearl polymerization method to polymerize the copolymers. Applicants therefore respectfully submit that Sampei does not anticipate the claimed invention.

2. It would not be obvious to pearl polymerize the claimed copolymer having 2-9 fluorine atoms in the "O-(R²)-(CF₂)nX" portion based on the teachings of Sampei

The copolymer of Formula (1) of claim 1 has a "O-(R²)-(CF₂)nX" portion within the molecule. Since n is 1-4 and X can be fluorine, Formula (1) is limited to 2-9 fluorine atoms in the "O-(R²)-(CF₂)nX" portion.

Sampei teaches 119 exemplified units of Formulas (A-a), (A-b), (C) and (D) in examples A-1 to A-65, B-1 to B-14, C-1 to C-24, D-1 to D-7 and E-1 to E-9 in cols. 6-19. Of these 119 exemplified units, only 10 units have between 2 and 9 fluorine atoms. The 10 units are A-1 to A-10 in cols. 6-7 of Sampei. Thus, only a very small portion of the units of Sampei fall within the scope of Formula (1). Sampei provides no motivation to employ a copolymer having these 10 units out of the 119 total units.

In the outstanding Office Action, the Examiner had taken the position that the copolymer of Sampei would behave similarly

to the claimed copolymer, whether or not the copolymer of Sampei was produced by the pearl polymerization method. The Examiner had also taken the position that the copolymer of Sampei would behave similarly to the claimed copolymer, since the copolymer of Sampei overlaps the claimed copolymer (section 9 of the Office Action).

Applicants have enclosed a Declaration of Mr. Akihisa Nakajima to demonstrate the criticality of the pearl polymerization process in combination with a copolymer having 2-9 fluorine atoms.

Mr. Nakajima prepared photothermographic material Samples 1 and 19-30 as shown in Table (Sup) of the Declaration. Samples 1 and 19-23 contained copolymers having between 2-9 fluorine atoms in the " $\text{O}-(\text{R}^2)-(\text{CF}_2)_n\text{X}$ " portion of Formula (1). The copolymers of Samples 1 and 19-23 were polymerized by the pearl polymerization process. Samples 1 and 19-23 therefore fall within the scope of the claimed invention.

Mr. Nakajima also prepared Samples 24-28 as shown in Table (Sup) of the Declaration. Samples 24-28 contained copolymers having between 2-9 fluorine atoms in the " $\text{O}-(\text{R}^2)-(\text{CF}_2)_n\text{X}$ " portion of Formula (1), but the copolymers were polymerized using solution polymerization instead of pearl polymerization. Solution polymerization was chosen since it is considered to be

the most common method of polymerization (see par. 7 of Mr. Nakajima's Declaration of August 17, 2005). Samples 24-28 are therefore outside the scope of the claimed invention.

Mr. Nakajima additionally prepared Samples 29-30 as shown in Table (Sup). The copolymers of Samples 29-30 were polymerized using the pearl polymerization process, but the number of fluorine atoms in the "O-(R²)-(CF₂)_nX" portion of Formula (1) was outside the 2-9 range. Samples 29-30 were therefore also outside the scope of the claimed invention.

Samples 1 and 19-30 were evaluated for coating characteristics and transportability as described in par. 7 of the Declaration. The evaluation results are shown in Table (Sup).

As shown in Table (Sup), Samples 1 and 19-23 in accordance with the claimed invention were superior to Samples 24-30 outside the scope of the claimed invention. Specifically, Samples 1 and 19-23 had no coating problems since the coated surface was completely flat (5 rating), while Samples 24-30 had coating problems (1-3 rating). In addition, Samples 1 and 19-23 had no transportation trouble for 100 sheets (0 rating), while Samples 24-30 had transportation trouble for 1-9, 10-19 or more than 20 sheets.

Table (Sup) therefore demonstrates the significance of pearl polymerizing a copolymer having 2-9 fluorine atoms in the "O-(R²)-(CF₂)nX" portion as recited in claim 1. Mr. Nakajima declared in par. 11 of the Declaration that the results shown in Table (Sup) are surprising and unexpected, since it is not obvious that the pearl polymerization method would be superior to the solution polymerization method when used to polymerize the copolymer of claimed Formula (1) (comparison between Samples 1, 19-23 and 24-28), and since it is not obvious that the pearl polymerization method would produce a superior material when the copolymer has between 2-9 fluorine atoms in the "O-(R²)-(CF₂)nX" portion of Formula (1) compared to less than 2 or more than 9 fluorine atoms in the "O-(R²)-(CF₂)nX" portion of Formula (1) (comparison between Samples 1, 19-23 and 29-30).

It is respectfully submitted that the present invention is not obvious over Sampei. First, Sampei does not teach or suggest the pearl polymerization method. Second, Sampei does provide any suggestion to select the 10 units out of the 119 total units that have between 2-9 fluorine atoms in the "O-(R²)-(CF₂)nX" portion. Third, Sampei does not suggest the criticality of pearl polymerizing a copolymer having 2-9 fluorine atoms in

the "O-(R²)-(CF₂)_nX" portion as demonstrated by the enclosed Declaration of Mr. Nakajima. It is therefore believed that the present invention is not obvious over the teachings of Sampei.

F. Conclusion

In view of the foregoing and the enclosed, it is respectfully submitted that the application is in condition for allowance and such action is respectfully requested. Should any extensions of time or fees be necessary in order to maintain this Application in pending condition, appropriate requests are hereby made and authorization is given to debit Account # 02-2275.

Respectfully submitted,

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Encl: Executed Declaration of Mr. Akihisa Nakajima
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